FALCON030

The first ever personal multimedia system

Le premier système personnel multimédia

Das erste Multimedia System für den Privatgebrauch

Il primo sistema multimediale personale

Het eerste personal multimedia systeem

ATARI

Atari presents the 1st ever personal multimedia system

The new Atari Falcon030 is a genuine and exciting breakthrough in the field of personal multimedia. It brings together unparalleled performance with a wide variety of potential applications.

FALCON030

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POWER THAT BREAKS THROUGH THE BARRIERS.

At the centre of the Falcon030 lie two powerful hearts: the super fast 68030 microprocessor which runs 4 million instructions per second, and the versatile Motorola DSP 5601 processor which instantly transforms analog data such as picture and sound into "software code".

The Falcon030 also boasts an impressive array of interfaces designed to link audio-visual equipment such as TV's, monitors, hi-fi systems, telephones, synthesisers, printers, or modems.

This double processor layout means that processing times are up to 10 times quicker than on other personal multimedia systems.

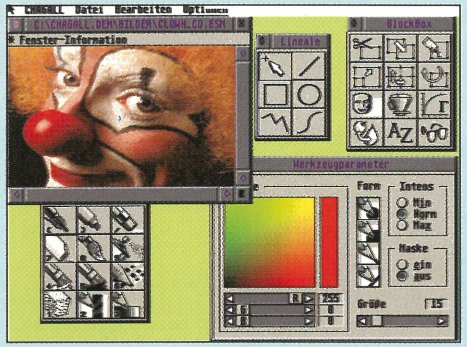
Applications

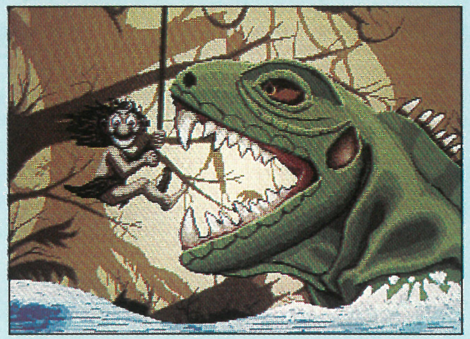
video

AN EXTREMELY OPEN SYSTEM.

The Falcon030 is equipped with every input/output interface you could ever need.

- The widely praised MIDI sockets that laid the foundations of the ST's fame in the field of music.
- A 9-pin RS232C socket, with a 250K per second output.
- A bi-directional parallel Centronics interface, designed to connect printers and scanners.
- A LocalTalk compatible local network port.
- 2 standard toggle-stick/mouse connections.
- 2 extended digital analog connectors for new toggle-sticks.
- A cartridge port.
- A stereo audio input for a microphone.
- A stereo audio output to connect hi-fi systems, stereo headphones, or amplified speakers.
- A video connection for all monitors.
- An HF video connection to plug directly into VCRs.
- An SCSI-connection, able to carry up to 8 SCSI peripherals (1 or 2 standard) such as CD ROM hard discs or laser printers.
- A DSP connection, opening the processor up to the outside world, and passing the eight sound channels to a numeric level.





THE IMPACT OF IMAGES. THE ATTRACTION OF COLOUR

Atari computers have been renowned for breaking the barriers of bringing workstation quality graphics into a price bracket affordable to home users. The Falcon030 takes this even further, running graphics modes which produce images which the human eye would not be able to distinguish from reality.

A WHOLE NEW WORLD OF COLOUR

In palette mode each pixel gets a code on a selection of 256 colours from a palette of 262,144.
Our true colour display is famous amongst computer graphics professionals. Now it is well within the reach of the home user. Using it, each and every pixel on screen can be designated as a completely different colour, totally independent from any other pixel.
All this means, is that running at its highest resolutions, you will not be able to tell the difference between the image on your Falcon and a real picture displayed on TV.

TV'S AND MONITORS, TOO.

Another major Falcon030 innovation is that it can be connected to a wide range of screens. In addition, it can display almost all of its 50 resolutions on TV or any other kind of monitor, including VGA.
Beyond this, the Falcon030 offers the opportunity of laying a computer image over a video image, enabling the full use of Genlock facilities for video titling and special effects.

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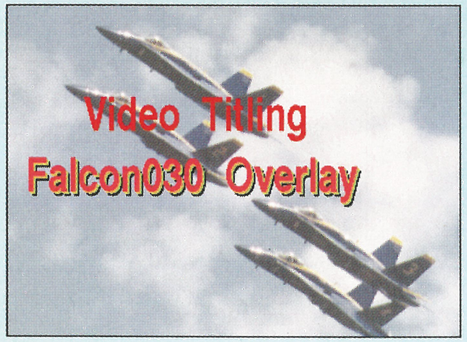


RETOUCH AND ENHANCE YOUR PHOTOS

Photo retouching, previously the domain of experts, is now open to everybody. Using your Falcon030, you can create special effects, overlay pictures, lighten any that are too dark, even get rid of the unfocussed bits. And all this ten times faster than any 68030 processor.

What's more, we will shortly be introducing equipment to enable the Falcon030 to read the Kodak Photo-CD. This will allow you to retouch your pictures, display them on your TV, even make a film by adding video effects from moving pictures, or a voice-over and musical background.

When it comes to taking photographic images on board and manipulating them, it is also possible to connect to the Falcon030 scanners and numeric photography systems.

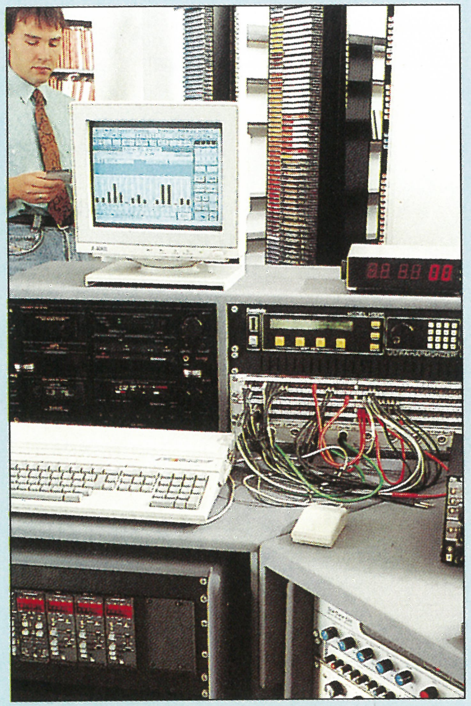
EDIT HOME VIDEOS

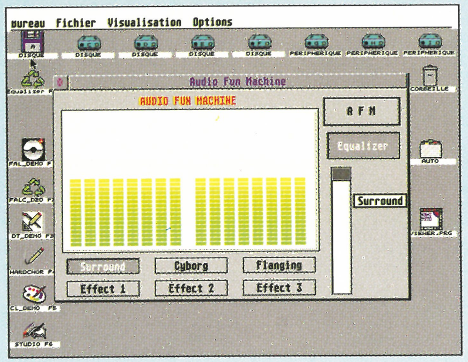
Want to subtitle a movie, add balloons, mix images (static or animated), from your camcorder? With the overlay mode, and the Falcon030's external synchronisation, nothing could be easier, especially since DSP's technology means low price video synchronisers (Genlock), making professional video editing and special effects techniques both easy and affordable.

Even more good news for those whose hobby is video animation or cartoons:
the Falcon030 will soon be ready to hook up to real time video digitisers (25 frames per second, in Genlock) and, through the antenna socket, allow directly recorded synthesised images onto VCR.

So, from simply annotating your home videos to animating Roger Rabbit onto Casablanca, video editing has never been as easy or as powerful.

Applications
Audio





Bureau Fichier Visualisation Options
DISQUE
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Equalizer F
CORBEILLE
Audio Fun Machine
AUDIO FUN MACHINE
A F M
Equalizer
Surround
Surround
Cyborg
Flanging
Effect 1
Effect 2
Effect 3
FAL_DEMO F
FALC_D2D F
DT_DEMO F3
HARDCHOR F4
CL_DEMO F5
STUDIO F6
AUTO
VIEWER.PRG

SOUND THAT'S EVEN BETTER THAN LASER DISC

Made to slot right into your home a-v equipment, the Falcon030 offers you sound that's even sharper than the already remarkable quality you get from laser disc. Technically speaking, this means eight 16 bit numeric sound channels, with a sampling frequency of up to 50 MHZ both for recording and reproduction.

EXCEPTIONAL STEREO CAPACITY

The Falcon030 comes complete with a stereo input into which you can plug a microphone, a walkman, or a hi-fi system. To reproduce the sound, a converter mixes the eight channels then outputs crystal clear stereophonic sound.
And because DSP comes on all models, the output signal can be modified and various frequencies amplified, adding for example echo or reverb effects.
With its MIDI interface, the Falcon030 can also run instruments such as synthesisers and rhythm boxes and offer direct-to-disc recording.
In short, the kind of quality never before encountered with a micro computer.

YOUR OWN HOME STUDIO

Whether you're a music pro or a music buff, the Falcon030 does more than just make your life easier: it actually opens up vast areas of creativity.
Atari, with its breakthroughs in combining computer and MIDI standards have virtually rewritten the way in which composing and arranging is done. The Falcon030 takes all this even further. Naturally it has its MIDI sockets, but what will really excite musicians, especially in this era of technologically produced and sampled sound is the DSP and direct-to-disc capacity.

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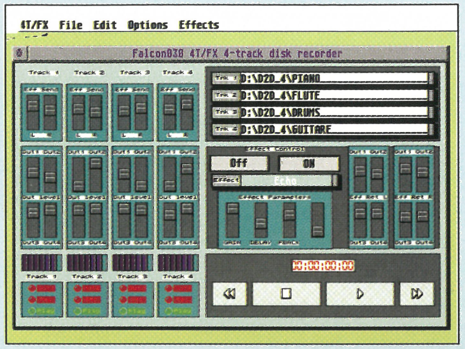

4T/FX
File
Edit
Options
Effects
Track 1
Track 2
Track 3
Track 4
Eff Send
Out1 Out2
Out level
Out3 Out4
Effect Control
Off
ON
Effect Parameters
GAIN
DELAY
Eff Ret L
Eff Ret R
00:00:00:00
Play

Falcon030 4T/FX 4-track disk recorder

Trk 1 D:\D2D_4\PIANO

Trk 2 D:\D2D_4\FLUTE

Trk 3 D:\D2D_4\DRUMS

Trk 4 D:\D2D_4\GUITARE

Effect Echo

Technics
SOFT
FM 102.50
MASH
DECK 1

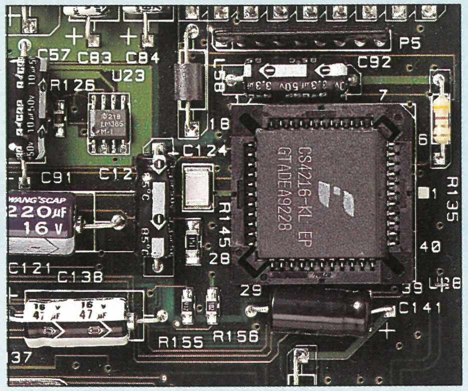
Direct-to-disc means that the Falcon030 can stock sound samples on hard disk, and play them back in real time. Now you will be able to sample whole musical pieces, group them and create hours of unique sound quality.

With the direct-to-disc system, you can edit in the same way as with the MIDI sequencer, but with the added advantage that it works with any acoustic instrument, even the human voice.

The Falcon030 can also be easily turned into a MIDI musical instrument. It can change into a powerful sampler and, what's more, the DSP means it can generate any type of synthesised sound whether subtractive or additive.

Another DSP advantage is its real time numeric treatment of sound signals which means that it can be used to recreate stereo effects, or lay effects such as echo, reverb or surround over the sound signal.

Take the Audio Fun Machine software for example. Plug your hi-fi system into the mike input, then link the Falcon030's audio output to your amplifier input. Audio Fun Machine turns your computer into a 16-band graphic equaliser, into a spectrum analyser, or into an atmosphere generator. The possibilities are boundless: your living room becomes a jazz club, a night club, a church, even a jam-packed auditorium!


C57
C83
C84
U23
R126
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C92
L58
18
7
6
C124
C91
C12
CS4216-KL EP
R145
R135
220µF
16V
28
40
C121
C138
29
39
C141
R155
R156
37

A LANGUAGE LABORATORY IN YOUR LIVING ROOM

The DSP's sound synthesising possibilities make it a powerful tool for the learning of languages. Now, the door is open to educational software with, for instance, the capacity to evaluate the quality of pronunciation, even correct it.

Voice synthesising, which is already used in special 'awakening' software for small children, now has, in DSP, the tool it lacked for a major breakthrough in this area of education.

With the Falcon030, learning colours, understanding music, discovering the human body, creating cartoons, learning the highway code, to give just a few examples, are all fields in which this new generation of educational software will be able to take over from more conventional methods.

Applications

Telecommunications

GAMES

VIRTUAL REALITY, IN THE COMFORT OF YOUR OWN HOME

Using True Colour mode, the Falcon030 takes you to new heights where games are even more real than reality itself!

Analog ports can be used to connect peripheral equipment such as 3D or PowerGloves. What's more, the powerful DSP means the generation of the kind of 3-D universe that will, quite simply, amaze you.

When it comes to action games, the wealth of colour, the hardware scrolling, the BLITTER, and the numeric sound combine to bring you games as fast and as hyperreal as any you'll find in the arcade.

Now, all those interactive games that everybody has been talking about, where each character has its own independent intelligence are finally within your reach.

TELECOMMUNICATIONS

THE OFFICE OF THE FUTURE ALREADY EXISTS.

Now that office applications such as word processing, spreadsheets and databases have become part of everyday office life, the time has come to move on.

The Falcon030, with its DSP opens new and radical communications channels. Already, R&D is opening up various software and extensions, such as low cost videophone systems, which will have immense appeal for companies as well as for individuals.

Even today, a vocal message system is available in the USA. This connects to the Falcon030's DSP output, turning it into a smart answering machine.

Other companies are working on RNTS interfaces that will link the Falcon030 to the services of numeric networks, such as NUMBRIS. Prices are likely to be 5 to 10 times cheaper than standard PC cards. The DSP can also work as a modem. At Atari, we are currently planning a high performance 14,400 baud fax/modem. All this for much less than the cost of a stand-alone fax and modem.

THE REVOLUTION STARTS HERE.

Over the past few years, the whole field of home electronics has seen a series of massive and exciting developments. Compact disc, portable videos, numeric technology, to name but a few. Recently, moves have been made to integrate these technologies into micro computers. The end result a true multimedia machine.

So what exactly does it all mean? Multimedia is certainly not just CD ROM or interactive laser discs. Neither is it simply inlaying art within text, or laying music over a flow of pictures.

Look around you and you will notice that more and more audiovi-

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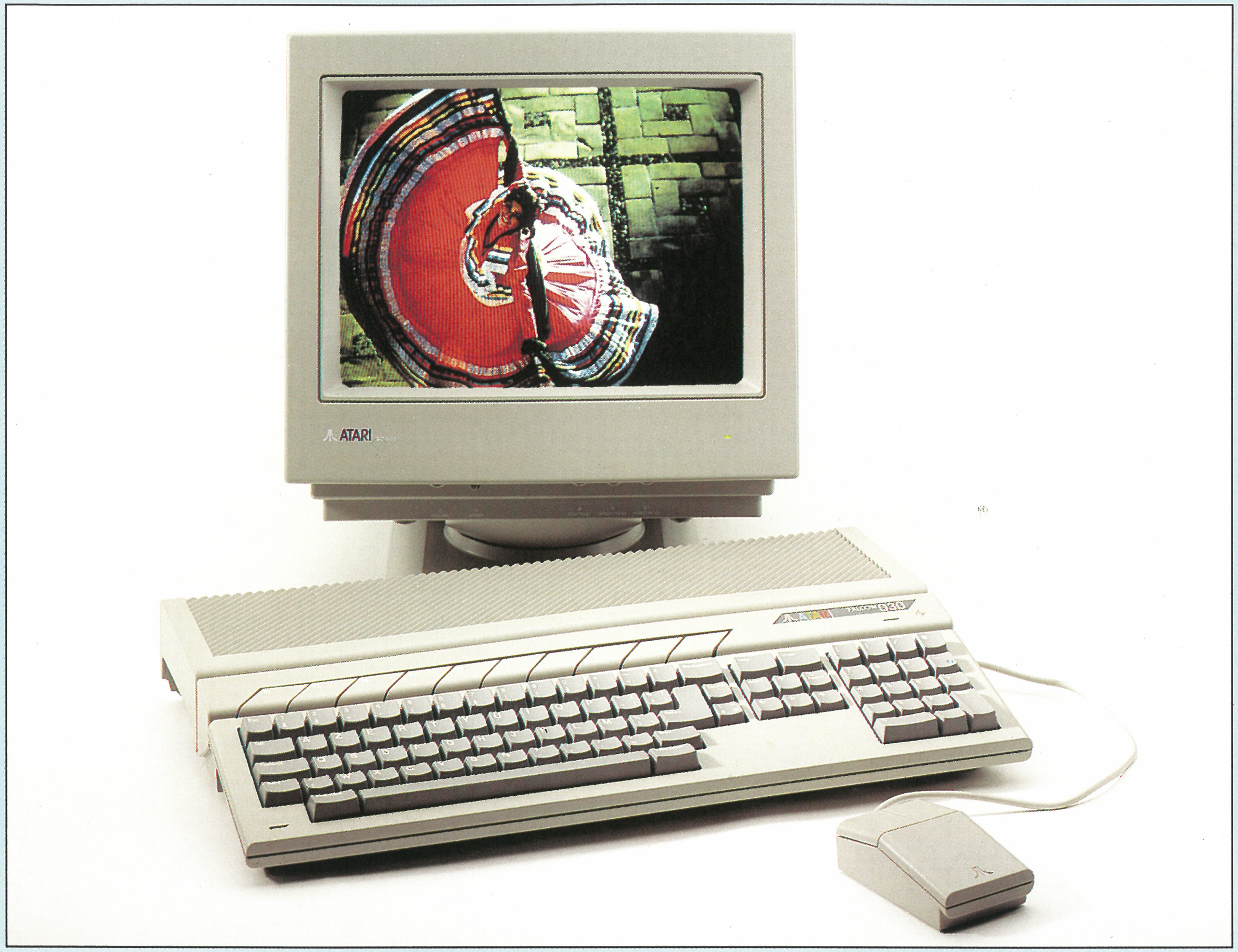


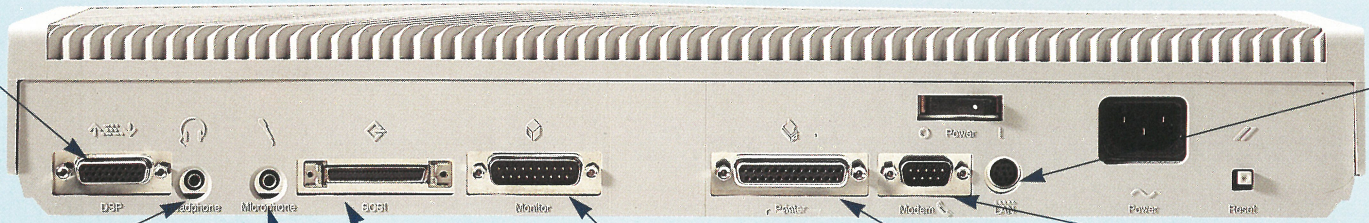
sual such as CD players, audio tapes and photos are becoming digital. This means that the information they receive, or create is being transformed into 'software code'.

So already, they are prepared for the advent of multimedia. Others (camcorders, VCRs or TV's, for example) are still based on conventional technology.

Given the need to deal with such a mix of advanced and conventional, multimedia orientated software, remains expensive and very much a tool for professional use only.

It has taken Atari, the company which broke barriers by bringing leading edge technology to the individual, to come up with a truly accessible and affordable system: the very first personal multimedia system.

The Atari Falcon030 brings workstation power within the pocket of the home user.



DSP port

The DSP port is one of the most important of the Falcon 030 interfaces. It enables this processor to open to exterior peripherals such as video digitisers, fax-modems, etc...

LAN

This LocalTalk interface enables you to build up a unified network.

Audio output

This stereo mini-jack enables the connection of headphones or amplified loud-speakers.

Microphone input

This stereo mini-jack input is for sounds which are to be digitised. May be used for a microphone or a walkman, for example.

SCSI

Enables the connection of up to 8 hard disks, CD ROM's or optical disks. Entirely compatible with SCSI 1 standard peripherals.

Video connector

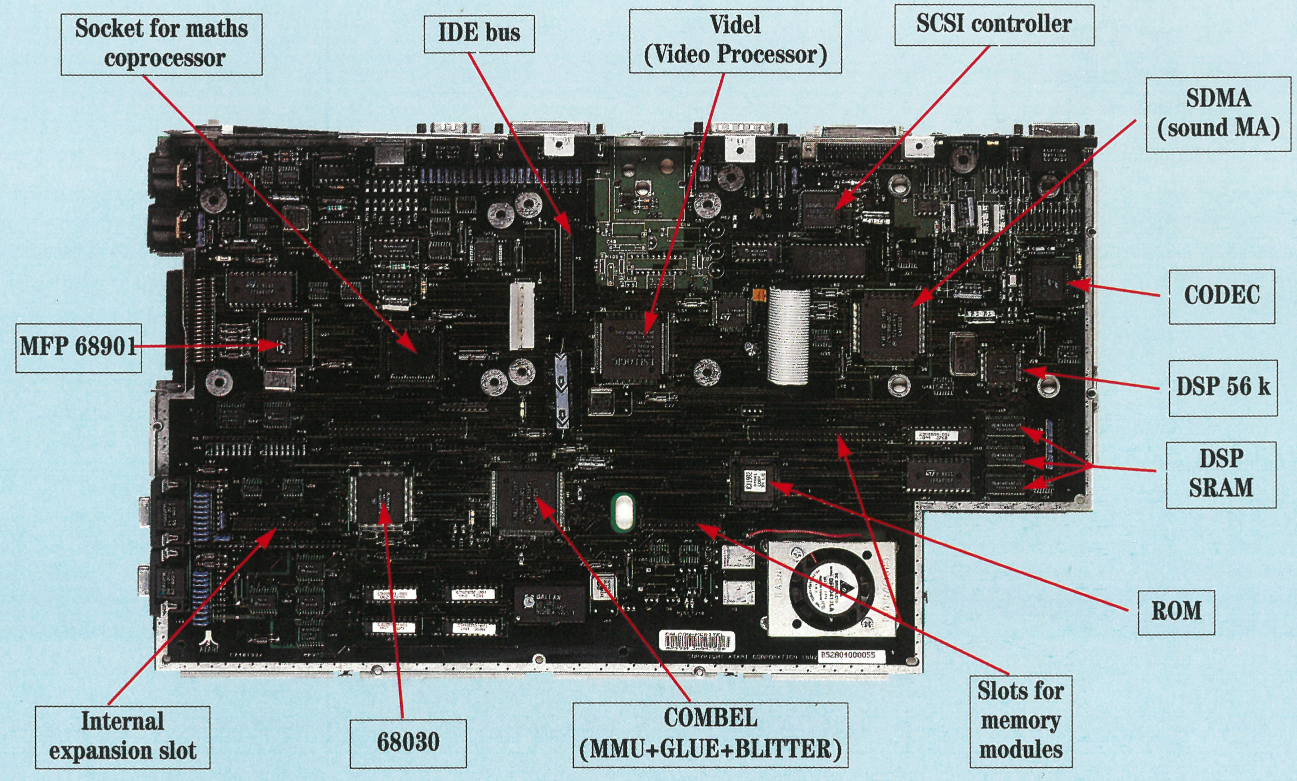
Transports composite and RGB signals. This connector is used to connect monitor adaptors, "Peritelevision" cables, and Genlocks.

Parallel interface

Bi-directional, it authorizes the connection of all the printers and all the scanners on the market.

RS-232-C

These 9-pin connections can function in either the synchronous or asynchronous mode.



GLOSSARY

Analog : the opposite of digital where the data is encoded numerically, analog is a technique whereby the data is represented by the level of the electrical voltage.
Spectrum analyser : a device that breaks down a complex sound into elementary sounds.
Bauds : used to measure the transmission speed of data sent via a telephone line.
CD ROM : peripheral memory unit using a support similar to a compact disk. It has a high capacity (about 600 Mb) but allows read only.
Tutorial : a program designed for teaching or guiding a user through a product.
Digitiser : A device that converts a sound or an image into digital elements usable by computers.
Direct-to-Disk : This is a recording technique storing the sound directly onto a hard disk.
DSP : Is a special-purpose processor for the high-speed processing of digital signals.
Genlock : An external device enabling the synchronisation of computer images with those of a video tape recorder.
Computer graphics : The use of a computer to produce graphics and process an image.
Interface : A common boundary between two or more items of equipment or software enabling the exchange of data.
MIDI : A standard permitting the exchange of data between musical instruments and computers.
MIPS : A unit of measure of computer power expressed in millions of instructions per second.
Modem : A device for transmitting computer data over a telephone line (modulator/demodulator).
MOPS : A unit of measure of computer processor power expressing in millions the number of microprocessor operations per second.
Overscan : Display mode allowing a full-screen display of an image without borders.
Overlay : Display mode enabling computerised images to be embedded in a video screen (TV or Camcorder)
Virtual Reality : Computerised simulation of a fictitious universe that can be processed as if it were real.
Resolution : Indication of the number of points used to display an image. The higher the resolution, the sharper the image.
RS232C : Serial communication protocol between two computers or a computer and a peripheral.
SCSI : Small Computer Systems Interface - a high-speed communication protocol between a computer and one or several high-speed peripherals (hard disk, scanner, etc.).
True Colour : "Paletteless" display mode where each point of the screen is defined by its colour components (RGB).
VGA : Standard Video Graphics Array displaying 16 and 256 colours, widely used by PC computers.

In accordance with Atari's policy of continued product improvement, specifications are subject to change without prior notification.

Technical Characteristics

ARCHITECTURE

CPU : Motorola 68030, rated at 16 MHz,
256 bytes of cache for data,
256 bytes of cache instructions,
on board PMMU,
performance : 4 MIPS.

FPU : support for an optional Motorola MC68881 or MC68882 arithmetic co-processor running at 16 MHz.

RAM : memory module of 1.4 Mb or 14 Mb.

ROM : 512 Kb + possible external extension of 128 Kb.

Specialised co-processors : BLITTER (graphics accelerator) & SDMA (DMA).

DSP

Digital-signal-processing processor.

Motorola DSP 56 K, rated at 32 MHz,

Performance: 96 MOPS, 32 K-words of SRAM memory with 0 wait state.

29-pin DSP connector to enable the connection of peripherals such as 19200-baud Fax/Modems, vocal message and digital recording systems "direct-to-disk".

EXTENSION BUS

Internal slot, "direct processor" format for additional cards:
- video digitizing, PC emulation,
- PC emulation,
- Mac emulation,
- accelerators,
- graphics cards.

GRAPHICS

Direct connection to TV (PAL-I signal), VGA and RGB monitors.

Palette of 262, 144 colours.

16 bits True Color mode (for high photo quality image).

EXAMPLES OF RESOLUTION

Super VGA : 640 x 480 in 256 colours.
True Color : 320 x 200 in True Color mode
320 x 480 en True Color mode
768 x 480 en True Color mode

Possibility of Genlocking in every mode.

External synchronisation input for Genlock.

RESOLUTIONS	**NON OVERSCAN**	**OVERSCAN**
horizontal	320 640	384 768
vertical	200 400	240 480

VIDEO MODE :

plane	colors(*)	palette
1	2	262 144
2	4	262 144
4	16	262 144
8	256	262 144
16	65 536	16 bits True Color (no palette)

(*)number of simultaneous onscreen colours

Direct "overlay" mode in True Color for video titling and special effects.

Programmable overscan.

Hardware scrolling.

Integrated BLITTER (graphics accelerator) running at 16 MHz.

SOUND

16-bit integrated stereo analog/digital converter.

16-bit integrated stereo digital/analog converter (1-bit DAC Bitstream technology, over-sampled 256 times).

1 Stereo microphone input.

1 Stereo headphone output.

1 Integrated loudspeaker.

PSG 3-voice + noises sound generator.

8-channel 16-bit DMA PCM in recording and playback (via DSP connector)

Input for external synchronisation of the sound processor.

Sophisticated multiplexer to interconnect DSP, Codec, DMA and the I/O connector.

INPUT/OUTPUT PORTS

1 SCSI connector in DMA.

1 High-speed network connector compatible with LocalTalk.

1 RGB and composite analog video connector.

1 PAL video output.

1 Bidirectional Centronics parallel interface.

1 Synchronous/asynchronous serial output.

1 Cartridge slot

2 MIDI connectors (IN and OUT/THRU).

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1 Stereo headphones connector.

1 Stereo microphone input.

2 Standard Joystick connectors (of which 1 for the mouse)

2 Extended joystick connectors (analog/digital)

Battery-backed internal clock.

STORAGE

1 High-density, double-sided, 3 1/2" diskette drive; diskette capacity 1.44 Mb, 100% MS-DOS compatible

1 IDE format internal hard disk (optional)

MAN/MACHINE INTERFACE

95-key QWERTY keyboard with 10 function keys separate cursor-direction and number pads.

Keyboard processor helps reduce overload on CPU.

2-button mouse, standard.

OPERATING SYSTEM

TOS 4.0: monotask system with graphics interface in ROM.

MultiTOS: pre-emptive multitask system with automatic adaptation of priorities, supplied on diskette and pre-installed on hard disk.

Iconic graphics interface featuring a 3D new look including the Atari NewDesk program.

Vectorial displays and printing thanks to SpeedoGdos and Bitstream fonts.

NEW GENERATION OF SOFTWARE PACKAGES

Throughout Europe and the United States, the top software developers are writing programs to take advantage of the extraordinary possibilities afforded by the Falcon030. Art packages, Video packages, Photographic Retouching packages, Music packages - direct to disk and MIDI, Speech Recognition software, Education software, Games software, Telecommunications packages are all under development - with many available immediately - in varying complexity for the home user, the enthusiast or the professionnal.

There is also a full range of peripherals available and in development which support the Falcon030 and the software under development. There is a separate brochure entitled "A new Generation of Software Packages", which should be available at your local retailer.

Atari Corp. (UK) Ltd.
Atari House
Railway Terrace
Slough, Berkshire
England SL2 5BZ
Tel : (44) 753-533344

Atari France S.A.
79, avenue Louis Roche
92238 Gennevilliers Cedex
France
Informations Falcon :
3615 ATARI

Atari Computer GmbH
Am Kronberger Hang 2
6231 Schwalbach/Ts
Deutschland
Tel : (49) 6196-801180

Atari Italia S.P.A.
Via Bellini, 21
20095, Cusano MIL
Milan, Italy
Tel : (39) 2-6134141

Atari (Benelux) B.V.
Hagenweg 7B
Postbus 70
4130 EB Vianen
Holland
Tel : (31) 03473-77272

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